## Study Suggests Human Brain Can Create New Nerve Tissue

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ology at the Massachusetts Institute of fantastically interesting paper," said Dr. Ann Graybiel, professor of neurobl-

Medical School in Piscataway, N.J., na said: "It wasn't thought possible that "I' you would find this in the mature mann-pl mailan brain. This work opens a new in avenue for the treatment of human starting damage." Dr. Emanuel DiClcco-Bloom, assistant professor of neuroscience and cell biology at the Robert Wood Johnson

School, said: "This is potentially really interesting, but I would like to see if it can be taken to the next step, by activating the same thing in vivo," in the Dr. Constance Cepko, a developmental neurobiologist at

worked on embryonic nerve cells, said the new technique could someday pro-vide an ethically acceptable alternatissue, experiments that have outraged those who believe such therapies envide an ethically acceptable alterna-tive to the medical use of fetal brain courage abortions.

nature from the adult brain." He said.
"It could be that the development of ploneering technologies like this will hay the ethical debates to rest." He ry, the cells could be harvested and transplanted into patients suffering suggested that if adult human neurons can be made to flourish in the laborato-"This work suggests we may be able of an embryonic from brain degradation. to obtain

Many parts of the body, including the skin, liver, Immune system and stomach lining, replenish themselves living animal. "Il that step is taken, it throughout Ille, drawing upon their will be pretty exciting," he said, stores of immature cells, called stem Dr. Ronald McKay of M.I.T., who has cells, to replace tissue lost to normal

Opening a new avenue for the brain damage. treatment of

matured into two cell

faking a gamblé, the

Of Brain Cells

·New Growth

Cepillary

for example, indicated that beyond the first few days after birth there was no detectable neuronal growth, apari mammallan lear. In the mose. detectable and

Drawback to New Neurons

"We store information in our neurons and if you changed neurons every year, you'd have to go to college every year "Continuous neuronal regeneration would not be a good idea for humans," said Dr. Pasko Rakic, a neurobiologist Yale University School of Medicine.

inspired to consider the possible plas-ticity of the adult brain by their studies of mouse embryos. In those experttissue and fed them a serum of epider-mal growth factor, a blood protein that ments, they cultivated fetal cells be-lieved to be the precursors to brain Dr. Weiss and Dr. Reynolds were to relearn English."

normally helps in healing wounds.
They expected the growth factor to merely keep the cells alive, but it proved to have a more dramatic ef-

erable degradation occurs in patients with Huntington's disease. Some of the cells they pulled out had characterisites indicating that they were indeed a lingering group of embryonic cells. On tin, tintil then thought to exist only in their surface was a protein called nes letal brains.

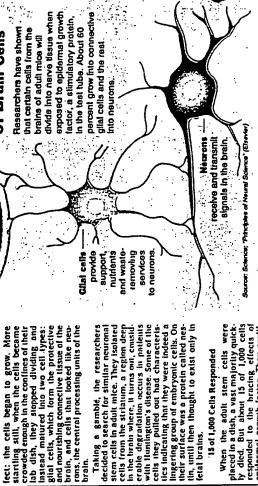
15 of 1,000 Cells Responded

assuming the distinctive character of neurons. These cells had the shape and wispy processes of neurons, and also produced two neurotransmitters, the Scientists have no clue to what the , with 60 percent growing into connective glial cells and 40 percent molecules nerve cells use to communierated into sizable populations and within about two to three weeks begar placed in a dish, a vast majority quick responded to the bracing effects o When the adult stem cells cate with one another.

stem cells normally do in the striatum, rouse the normally dormant cells to but they clearly do not repair the brain proliferate into a cinergency populain the wake of damage and degrada, iton to replace dead or dying neurons. The New York Times; Illustration by C. B. William

tion. Nevertheless, Dr. Weiss suggest.

"Just because the brain despite the definition of the the delication of the despite the delication with drugs, perhaps a can't repair itself, he said, although synthesized version of epidermal he cautioned that at this point he was protein. In theory, the factor would soar. proliferate into a cinergency popula-tion to replace dead or dying neurons.
"Just because the brain doesn't re-



## From the Brain Cells of Mice New Nerve Tissue Generated

BY NATALIE ANGIER

prompt the same sort of neural regrowth in living mice. The adult mainmalian brain, long thought to be incapable of repairing itself, possesses a pool of inimature

The Inding, nevertheless, was a complete surprise to the researchers, as it challenges traditional notions that mammalian nerve cell growth ends shortly after birth. nearly all

> cells that can be coaxed to divide Into new nerve tissue, scientists have found. The discovery is the first compelling evidence that the adult brain retains

Other neurobiologists were quick to "It left us speechless." Dr. Welss "We were scratching our heads before we decided to explain It to the praise the new work. "I think it's a and trying to explain this to ourselves the world." The new repor appears today in the journal Science. rest of cells, a talent ordinarily limited to the tremely preliminary and is still limited to experiments on mice, many sclentists said it had broad implications for the treatment of neurodegeneralive diseases like Alzhelmer's, Parkinson's embryo. Although the result is exthe potential to generate fresh nerve

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Huntington's, as well as spinal

piid



Studying the brains of grown mice, factor would bloom into neurons, with long willowy tendrils, telitale signaling Dr. Samuel Weiss and Dr. Brent A. Reynolds of the University of Calgary da, discovered a hidden reservoir of tory protein catled epidermal growth Faculty of Medicine in Alberta, Canacells that when placed in a test tube and treated with a powerful stimula molecules

nerve cells.

significance of the result. For one thing, biologists must determine that human brains harbor a similar popula-But researchers warned that much work remained to demonstrate the full

them in laboratory dishes, and re-searchers are now seeking to learn "datory protein can For another, the tests were done by Isolating the rodent cells and treating tion of progenitor cells. whether the r